

PROPOSED FIXATION OF NEOTYPE OF *POTERIOCRINUS*
HEMISPHERICUS SHUMARD, 1858, TYPE-SPECIES OF *DELOCRINUS*
MILLER AND GURLEY, 1890 (CRINOIDEA, ECHINODERMATA).
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The purpose of this application is to request the International Commission on Zoological Nomenclature to use its plenary powers to designate a neotype of *Poteriocrinus hemisphericus* Shumard (1858) originally designated as the type species of *Delocrinus* Miller and Gurley (1890a).

2. The Pennsylvanian (Upper Carboniferous) and Permian crinoid genus named *Delocrinus* is more abundantly represented by described nominal species (at least 73) and is more widely distributed (all continents except Africa) than any other late Paleozoic crinoid genus. It is especially characteristic of marine strata which have yielded it, and because of the short vertical ranges of most distinguished species has been found very useful for stratigraphic zonation and correlations.

3. The type-species of *Delocrinus* designated by Miller and Gurley (1890a, p. 10) is *D. hemisphericus* (Shumard), originally described by Shumard (in Shumard and Swallow, 1858, p. 221) under the name *Poteriocrinus hemisphericus*. The type specimens of Shumard's species, in exactly recorded as to their source, have been irretrievably lost, probably destroyed by fire. Accordingly, Miller and Gurley (after quoting Shumard's description) based their diagnosis of *Delocrinus* on specimens obtained by them at Kansas City, Missouri, from beds now identified as Lane Shale of the Missourian Stage (lower part of Upper Pennsylvanian). Beyond doubt, these beds are somewhat higher (therefore younger) than the source or sources of Shumard's crinoids from Missouri, as well as lower (therefore older) than specimens recorded by Shumard (1858, p. 222) from Kansas. No illustrations were ever published to show the nature of Shumard's specimens. The fossils described and figured by Miller and Gurley as *Delocrinus hemisphericus* conform essentially to Shumard's description except for being smooth-plated instead of having a finely granulose surface. Miller and Gurley's specimens are preserved in collections of the University of Chicago, now repositied in the Field Museum of Natural History (Chicago), and were studied by Moore and Plummer (1940).

4. Concluding that Miller and Gurley misidentified Shumard's species, Moore and Plummer (1940, p. 258) renamed the Kansas City crinoids as a new species called *Delocrinus subhemisphericus*. They gave good illustrations of one of Miller and Gurley's specimens, chosen as holotype of the so-called new species, and figured a University of Kansas specimen chosen as one of the paratypes (Moore and Plummer, 1940, pl. 11, fig. 4, pl. 20, fig. 3a-b).

5. Article 70 of the Zoological Code (1961, 1964) explicitly states that a nominal species designated by an author as the type-species of a new genus is

presumed to have been correctly identified by him, subject to the provision, however, that if a zoologist considers this type-species to have been misidentified "he is to refer the case to the Commission to designate as the type species (by use of its plenary powers if necessary) whichever species will in its judgment best serve stability and uniformity of nomenclature (Art. 70,a)." Because such reference was obscurely permitted, rather than enjoined, by the Code (Art. 30,1) which was effective in 1940, Moore and Plummer may be pardoned for their failure to proceed in this way. The Commission now is asked to rule that the nominal species *Poteriocrinus hemisphericus* Shumard (1858), chosen by Miller and Gurley as type-species of their new genus *Delocrinus*, shall be fixed to apply to the species from the Kansas City area described and figured by them. Moore and Plummer's *Delocrinus subhemisphericus* would then become a junior objective synonym of *D. hemisphericus*. Further, the Commission is asked to establish as neotype of *Poteriocrinus hemisphericus* Shumard (1858) one of the specimens figured by Miller and Gurley (1890a, pl. 2, figs. 8-9) which also herein is described and figured. This fossil is catalogued as University of Chicago no. 6234, specimen 1, reposit in the Field Museum of Natural History (Chicago). Accompanying this are University of Chicago no. 6234, specimen 2; and U.C. no. 6234, specimen 3, illustrated by Miller and Gurley (1890a, pl. 2, fig. 10) consisting of an isolated first spinose arm plate (primibrach).

6. Description of proposed neotype of *Poteriocrinus hemisphericus* Shumard (1858) originally designated type-species of *Delocrinus* Miller and Gurley (1890a). Dorsal cup subcircular in outline, low (height approximately one-third of diameter), with narrow, moderately deep basal concavity containing diminutive infrabasal circlet of five down flared plates; basal plates strongly curved longitudinally, forming part of basal concavity and lower outer sides of cup; radial plates notably wider than high, nearly vertical at summit of cup, with broad subhorizontal articular facets of muscular type; single anal plate between posterior radials, with outer surface curved inward; first arm plate (primibrach) in form of long spine directed horizontally outward, with two upper facets for articulation with pair of arms (Fig. 1, 1-3).

7. For the purpose of stabilizing nomenclature and contributing to its uniformity, the International Commission on Zoological Nomenclature is requested:

- (a) to use its plenary powers to fix as neotype of *Poteriocrinus hemisphericus* Shumard, 1858, the specimen figured by Miller and Gurley (1890a, pl. 2, figs. 8-9) as *Delocrinus hemisphericus* (Shumard), originally designated as the type-species of *Delocrinus*, this fossil being now reposit in the Field Natural History Museum (Chicago), labelled University of Chicago no. 6234, specimen 1;
- (b) to place the generic name *Delocrinus* Miller and Gurley, 1890 (gender: masculine), type species stated in (a) above, *Poteriocrinus hemisphericus* Shumard, 1858, on the Official List of Generic Names in Zoology;
- (c) to place the specific name *hemisphericus* Shumard, 1858, as published in the binomen *Poteriocrinus hemisphericus* (type species of *Delocrinus* Miller and Gurley, 1890), on the Official List of Specific Names in Zoology.

REFERENCES

- MILLER, S. A., and GURLEY, W. F. E. 1890a. *Description of some new genera and species of Echinodermata from the Coal Measures and Subcarboniferous rocks of Indiana, Missouri, and Iowa*, Jour. Cincinnati Soc. Nat. History, 13 : 1-59, pls. 1-10
- 1890b. Same title as 1890a, Indiana Dept. Geology, Nat. History, Ann. Rept. 16 : 327-373, pls. 1-10 (Bloomington, Ind.)
- MOORE, R. C., and PLUMMER, F. B. 1940. *Crinoids from the Upper Carboniferous and Permian strata of Texas*, Univ. Texas Bull. 3945 : 1-468, pls. 1-21, text figs. 1-78 (Austin, Texas)
- SHUMARD, B. F., and SWALLOW, G. C. 1858. *Descriptions of new fossils from the Coal Measures of Missouri and Kansas*, St. Louis Acad. Sci., Trans., 1 : 199-227

Plate 4

Figure 1. Proposed neotype of *Delocrinus hemisphericus* (Miller and Gurley, 1890), all X2.—1a-d. Basal, posterior, anterior, and summit views of proposed neotype (Univ. Chicago no. 6234, specimen 1).—2a-d. Basal, posterior, anterior, and summit views of another specimen (Univ. Chicago no. 6234, specimen 2).—3a-c. Upper, lower, and end facetal views of another specimen (Univ. Chicago no. 6234, specimen 3).